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Pertussis Report, Wisconsin
October 15, 2012

Using information reported to the Wisconsin Division of Public Health (DPH) via the Wisconsin Electronic Disease Surveillance System (WEDSS), this report summarizes pertussis case occurrence and investigation activity in Wisconsin in 2012. A summary of the DPH guidelines for the prevention and control of pertussis, including links to important resources, can be found on the next page.

DEFINITIONS

Case: An acute cough illness, with a completed investigation, meeting the CDC/CSTE case definition for confirmed or probable pertussis. CDC/CSTE definitions: http://www.cdc.gov/pertussis/surv-reporting.html#case-definition.
Investigation: The follow-up interview and actions taken by the local health department (LHD) to control disease in an individual with a suspected case of pertussis and prevent disease among the individual's close contacts.

SUMMARY OF CASES

- From January 1, 2012 through October 14, 2012, 4,912 cases (3,593 confirmed and 1,319 probable) of pertussis with completed investigations have been reported among Wisconsin residents. Thus far, during the first 12 months of the current statewide outbreak (July 1, 2011 through June 30, 2012), 4,781 confirmed and probable cases have been reported (incidence = 84.1 cases per 100,000). During the previous 12 months (July 1, 2010 through June 30, 2011) 659 cases were reported (incidence = 11.6 cases per 100,000). **See Figure 1.** Note: Additional cases may have occurred during recent weeks that have not been completely investigated or reported to DPH.
- The recent reported pertussis activity is the most observed since the large pertussis outbreak during 2004-05. More than 5,600 reported cases occurred during 2004. **See Figure 2.**
- Among the 71 Wisconsin counties with cases that have been reported during 2012, the greatest numbers have occurred in Dane, Waukesha, and Milwaukee Counties. Reported incidence of pertussis was greatest in Forest, Oneida, and Columbia Counties. **See Figure 3.**
- Median age at cough onset was 12.4 years (range: <1 month to 91 years). Approximately half of all cases in each region occurred among children and adolescents aged 5 to 14 years. In the Southern and Northeastern regions, adults aged ≥20 years accounted for 28% and 23%, respectively, of all reported cases in the region. **See Figure 4.**
- Hospitalization of 2% of case patients was reported. The median length of stay was 3 days (range: 1 to 15 days) and the median age of hospitalized case patients was 5 months (range: <1 month to 89 years).
- 74% of case patients aged 0 to 10 years were up to date for age with pertussis immunizations before cough onset. 79% of case patients aged 11 to 18 years had reportedly received Tdap before cough onset.
- Vaccination against pertussis provided significant protection, but only during the years immediately following vaccination. Among Wisconsin children turning 5 years old in 2012, the rate of reported pertussis was approximately 5 times higher among those who had received 0 doses of DTaP compared to those who were fully vaccinated (had received 5 doses of DTaP). Among children who had received 5 doses of DTaP, the incidence of pertussis increased with increasing time since last dose of DTaP. Similarly, among Wisconsin children turning 11 or 12 years old in 2012, those who had not received Tdap were significantly more likely than those who had received Tdap to have a reported case of pertussis. (Source of population immunization information: Wisconsin Immunization Registry.)
- 262 cases of pertussis were reported among children aged <1 year; 64% were aged <6 months at cough onset, 1 (<1%) died, and 47 (18%) were hospitalized (for a median 3 days). 55% were up to date for age with pertussis immunizations, 19% were too young for immunization, 16% were under-immunized for age, and 10% were age-eligible for another dose but not delayed.

SUMMARY OF INVESTIGATION ACTIVITY

- The rate of new pertussis investigations (an estimate of the rate of pertussis activity) remains at an increased level in all public health regions, but decreased in all regions from May to September, 2012. **See Figure 5**.
- *Bordetella parapertussis* infections continue to be reported to DPH. Since October 1, 2011, 417 *B. parapertussis* infections have been reported. Median age at onset: 5.6 years (range: 1 month to 68 years).

PREVENTION AND CONTROL OF PERTUSSIS

- For detailed DPH guidelines: http://www.dhs.wisconsin.gov/immunization/pertussis.htm
- **Infected individuals are most contagious during the catarrhal stage and the first 2 weeks after cough onset**. While pertussis and parapertussis are illnesses characterized by prolonged cough, waiting until a patient has a cough of 2 or more weeks duration before considering a diagnosis of pertussis will result in substantial transmission of *Bordetellae* to others. When pertussis is known to be occurring in a community, recognition of pertussis during the catarrhal stage of illness should be enhanced, particularly when a patient with catarrhal stage illness had known contact with a patient who has a confirmed or probable pertussis.
- Test for *B. pertussis* only in patients with an acute cough illness suspected of having pertussis. Test with both PCR and culture whenever possible. If only one test can be conducted, test with PCR.
- Treat with a recommended macrolide, regardless of vaccination status, if the patient has been coughing for 21 days or less (42 days or less if the patient is an infant).
- Isolate until 5 full days of appropriate antibiotic treatment have been completed.
- Recommend prophylaxis for close-contacts if the contact occurred within the last 21 days.
- Immunize according to ACIP recommendations: http://www.cdc.gov/vaccines/pubs/acip-list.htm.
- Report suspected cases to your local health department: http://www.dhs.wisconsin.gov/localhealth.
- Contact your DPH Regional Immunization Representative if you have other questions about pertussis or about this report: http://www.dhs.wisconsin.gov/localhealth/counties/regional.htm.

Figure 1. Number of reported confirmed and probable cases of pertussis by week of cough onset, Wisconsin, January 1, 2011 through October 14, 2012

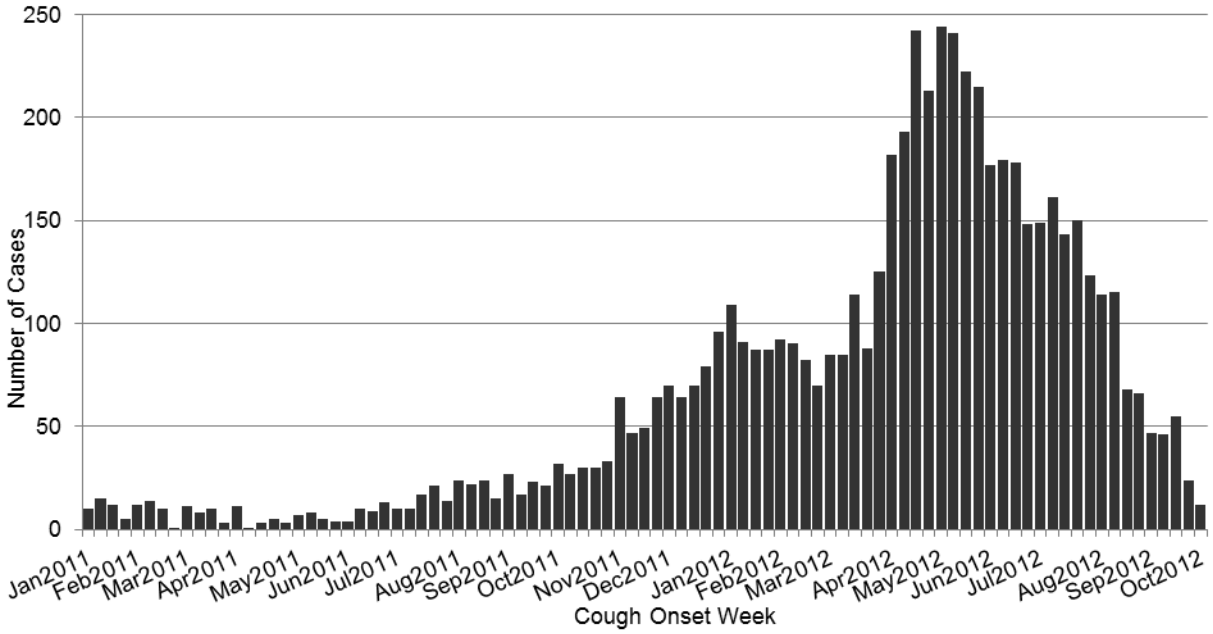


Figure 2. Number of reported confirmed and probable cases of pertussis by month and year of cough onset, Wisconsin, January 1, 2004 through October 14, 2012

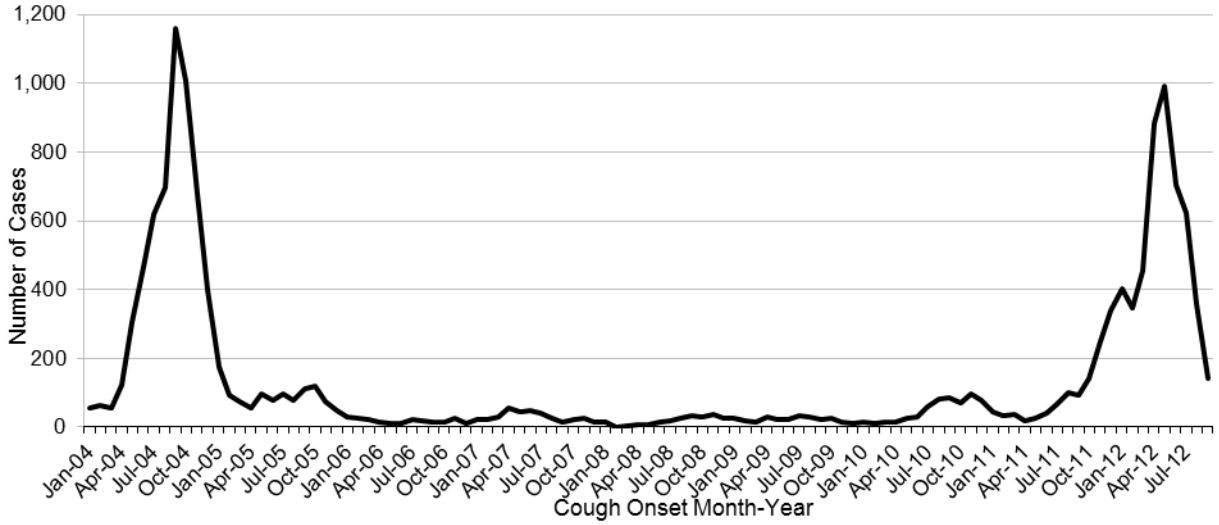
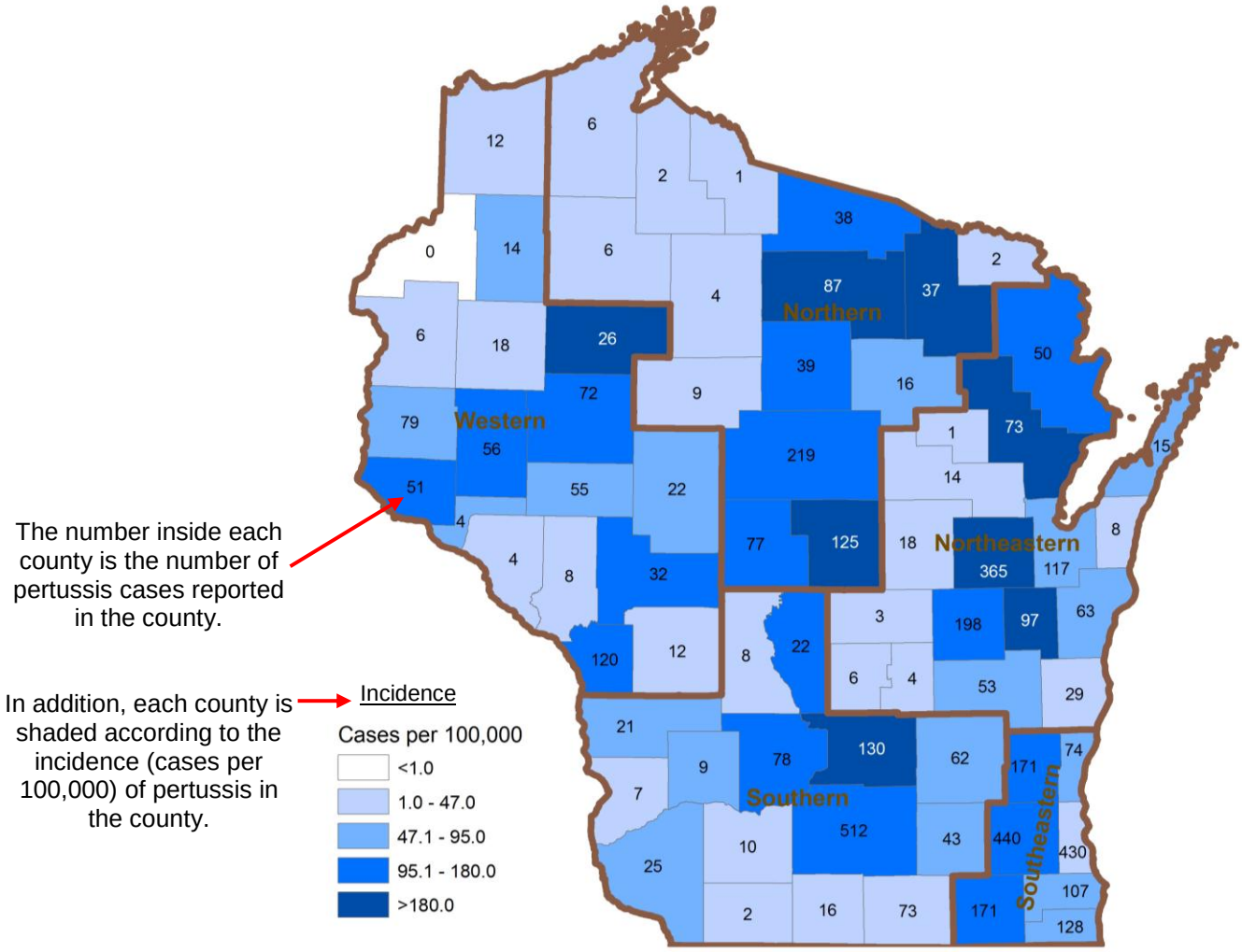


Figure 3. Number and interval incidence* of reported confirmed and probable cases of pertussis, by county of residence, Wisconsin, January 1, 2012 through October 14, 2012 (N=4,912)



***Interval incidence is the number of cases reported during the specified time interval per 100,000 persons

Figure 4. Number of reported confirmed and probable cases of pertussis, by age group and public health region, Wisconsin, January 1, 2012 through October 14, 2012 (N=4,912)

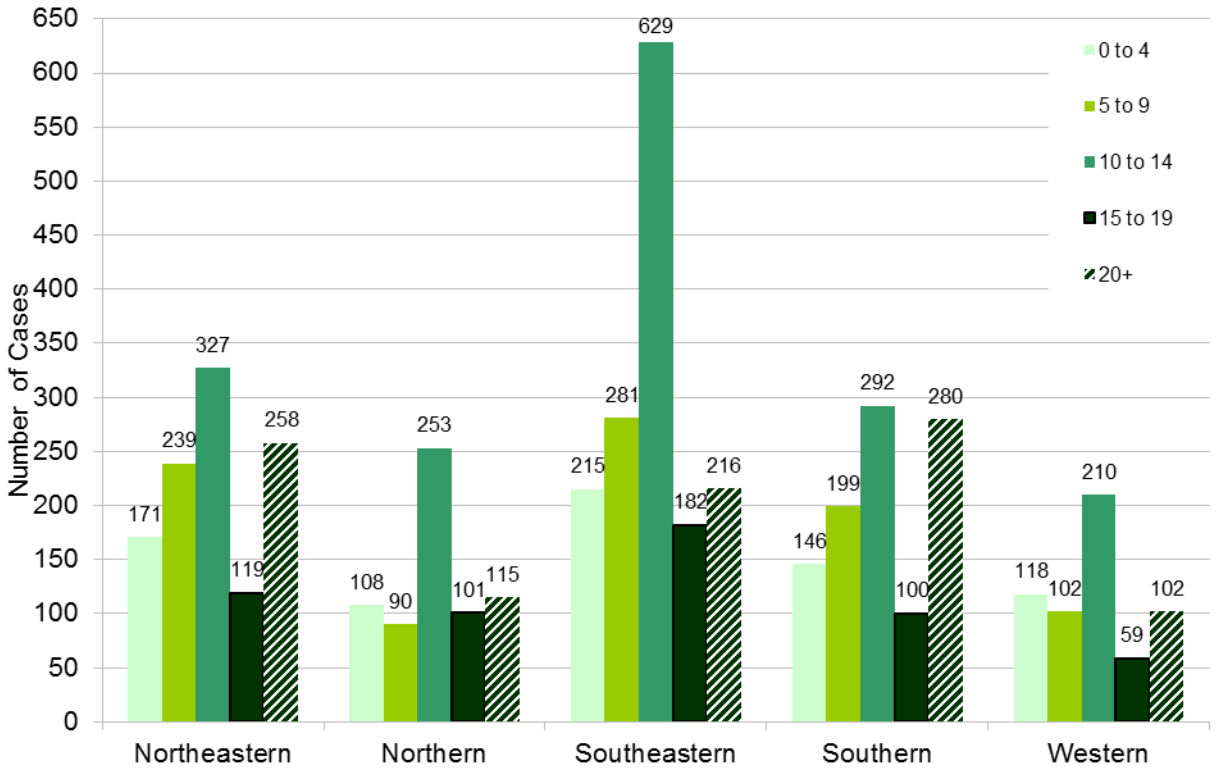


Figure 5. Number of new pertussis investigations (per 100,000), by public health region and month of report to the local health department, Wisconsin, January 1, 2011 through October 14, 2012